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IN THE MATTER OF
KOREAN PATENT APPLICATION
UNDER SERIAL NO. 98-39808

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KOREAN PATENT APPLICATION UNDER
SERIAL NO.: 98-39808

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IN THE NAME OF SAMSUNG ELECTRONICS CO.,
LIMITED

FOR: DIGITAL INFORMATON COPY
PROTECTION APPARATUS OF DIGITAL
INFORMATION TRANSMISSION SYSTEM AND
METHOD THEREOF

IN WITNESS WHEREOF, I SET MY HAND HERETO

THIS 19th DAY OF APRIL 2003

BY *msci*
MISOOK YI

[Translation]

PATENT APPLICATION

To: Director General
The Patent Office

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Title of the Invention: DIGITAL INFORMATION COPY PROTECTION
APPARATUS OF DIGITAL INFORMATION TRANSMISSION SYSTEM AND
METHOD THEREOF

Request for Examination: Yes

This application is hereby filed pursuant to Article 42 of the Patent Law

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Encls.

[ABSTRACT]

[Abstract]

The present invention relates to a digital information copy prevention apparatus and method of a digital information transmission system which are capable of generating an encoding key corresponding to a user's inherent character stream, co-using with a user, encoding and transmitting a digital information by an encoding key based on a user's request and decoding a received digital information based on an encoding key by a user.

In the present invention, there are provided a terminal apparatus for registering a member information including an inherent character stream inputted by a user, downloading and storing an encoding key requested by the user and decoding and reproducing the downloaded encoded digital information using the stored encoding key, and a service server for generating an encoding key corresponding to an inherent character stream from the terminal apparatus, storing with the inherent character stream, transmitting to the terminal apparatus when the user requests the encoding key and encoding the digital information requested by the user using the encoding key based on the digital information list, so that the terminal apparatus downloads the digital information. The digital information copy prevention apparatus includes a service paying proxy server for transmitting the digital information based on a user's request from the service server, receiving a signal for the charge and accumulating the digital information service charge information to the registered user's ID.

In addition, a digital information is transmitted from a service server based on a user's request, and signal for a charge is received, and a digital service charge

is accumulated in a registered user's ID.

Therefore, an encoding key corresponding to an inherent character stream of a user who receives a paid digital information through the network is generated in a server, and a paid digital information is downloaded by only a generated encoding
5 key, so that it is possible to prevent an illegal copy of a paid digital information.

[Representative drawing]

Figure 1

[SPECIFICATION]

[Title of the present invention]

DIGITAL INFORMATION COPY PROTECTION APPARATUS OF DIGITAL
INFORMATION TRANSMISSION SYSTEM AND METHOD THEREOF

5

[Brief description of the drawings]

Figure 1 is a schematic block diagram for explaining the construction of a digital information copy prevention apparatus of a digital information transmission system according to the present invention.

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Figure 2 is a schematic block diagram for explaining another embodiment of a digital information copy prevention apparatus of a digital information transmission system according to the present invention.

Figure 3 is a flow chart for explaining a method for preventing an illegal copy of a digital information in a service server of Figure 1.

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Figure 4 is a flow chart for explaining a method for generating and transmitting an encoding key in a host server of Figure 2.

* Numeral references of the drawings*

10, 20: terminal

20

11a, 21a: PC

11b, 21b: recording and reproducing apparatus

12, 22: service server

23: host server

14, 24: service payment proxy server

[Detailed description of the present invention]

[Objects of the present invention]

[Technical field of the invention and Background art of the field]

5 The present invention relates to a digital information copy prevention apparatus and method of a digital information transmission system, and in particular to a digital information copy prevention apparatus and method of a digital information transmission system which is capable of generating an encoding key corresponding to a user's inherent character stream, co-suing with a user, encoding and transmitting a digital information transmitted based on a user's request by an
10 encoding key and decoding and reproducing a received digital information by a user based on an encoding key.

Recently, peoples live in a flood of information provided through various media such as a broadcast, publication, etc.

15 Therefore, there is a provider who capable of integrating and supplying the information provided through various media, and a user selectively uses an information among many information provided by the provider.

20 Therefore, in a digital information transmission system, various information are converted into a digital information, and the digital information is provided to a user by a provider. A user receives an information from the provider through the network.

In the thusly constituted digital information transmission system, an application program is capable of easily receiving a digital information by a user. Since the user is connected with the digital information transmission system through the network, the user is capable of receiving a certain information by downloading

the same through the application program.

The digital information provided from the digital information transmission system is provided to a user for payment or for free. The server having a digital information transmission system which is capable of supplying a digital information
5 determines the service charge with respect to each digital information which is provided at a payment basic.

When the user downloads the digital information having the determined service charge, the service server accumulates the service charge based on the using time of the information and charges to the user.

10 However, in the case that the user is connected with the server which provided a commercial digital information through the network and receives a paid digital information, almost users illegally distribute the information to others or use the copied digital information. At this time, the server having the digital information transmission system has a big damage. In this case, it is impossible to prevent the
15 damage.

[Technical object of the present invention]

Accordingly, it is an object of the present invention to provide a digital information copy prevention apparatus and method of a digital information
20 transmission system which are capable of generating an encoding key corresponding to a user's inherent character stream, co-using with a user, encoding and transmitting a digital information transmitted based on a user's request by an encoding key, and decoding and reproducing a digital information by a user based on an encoding key.

[Construction and operation of the present invention]

To achieve the above objects, there are provided a terminal apparatus for registering a member information including an inherent character stream inputted by a user, downloading and storing an encoding key requested by the user and
5 decoding and reproducing the downloaded encoded digital information using the stored encoding key, and a service server for generating an encoding key corresponding to an inherent character stream from the terminal apparatus, storing with the inherent character stream, transmitting to the terminal apparatus when the user requests the encoding key and encoding the digital information requested by
10 the user using the encoding key based on the digital information list,⁹ so that the terminal apparatus downloads the digital information. The digital information copy prevention apparatus includes a service paying proxy server for transmitting the digital information based on a user's request from the service server, receiving a signal for the charge and accumulating the digital information service charge
15 information to the registered user's ID.

The preferred embodiments of the present invention will be explained with reference to the accompanying drawings.

A terminal(10) requests a member registration to a user and transmits an inherent character stream inputted by a user to a service server(20) and stores an
20 encoding key based on a user's request and downloads an encoded digital information from a service server(20) and decodes based on an encoding key.

The encoding key stored in the terminal(10) is generated based on a user's inherent character stream in accordance with a user's request during a new member registration and is provided to a user. Unless a member does not terminate the

member termination request, the digital information that the user wants to download is encoded using the encoding key and is supplied to a terminal(10) of a user through the network.

As shown therein, the terminal(10) includes a PC(11a) having a communication apparatus, and a recording and reproducing apparatus(11b) for receiving and storing an encoding key through the PC(11a), receiving an encoded digital information and recording into a storing medium and decoding and reproducing the digital information using the stored encoding key.

The recording and reproducing apparatus(11b) may be a portable type or holding type based on the kinds of the storing medium.

The terminal(10) is capable of implementing a communication and may be a product such as a cellular phone, digital TV, etc.

The service server(12) generates an encoding key corresponding to an inherent character stream from the terminal(10), stores together with the inherent character stream and transmits to the terminal(10) when a user requests the encoding key and has a digital information list, so that the digital information requested by the user is encoded based on the encoding key and encoding algorithm and is downloaded to the terminal(10).

The service payment proxy server(13) downloads the digital information based on the user's request from the service server(12) and receives the charge and accumulates the digital information service charge in the user's ID and requests to the user.

At this time, the inherent character stream is almost a user's resident registration number inputted when the user registers to the service server and may

be a certain character stream such as a drive license number which may be identified .

Figure 2 is a schematic block diagram for explaining another example of a digital information copy prevention apparatus of a digital information transmission system according to the present invention. As shown in Figure 1, the descriptions of the terminal(20), the recording and reproducing apparatus(21) and the service payment server(24) which are the same as the first embodiment will be omitted.

The service server(22) transmits the signal for receiving an encoding key corresponding to the inherent character stream from the terminal(20) to the host server(23) which will be explained later and receives an encoding key from the host server(23) and transmits to the terminal(20). In addition, the service server(22) has a digital information list and encodes the digital information requested by the user using the encoding key, so that the terminal(20) downloads the same.

The host server(23) generates an encoding key corresponding to the inherent character stream from the service server(22) and stores with the inherent character stream and transmits the encoding key to the service server(22) based on the request signal of the service server(22).

The operation of the digital information copy prevention apparatus of a digital information transmission system according to the present invention will be explained with reference to the accompanying drawings.

Figure 3 is a flow chart for explaining a method for preventing an illegal copy of a digital information of a service server of Figure 2.

As shown therein, the service server(22) judges whether the user inputted a signal for registering a member using the terminal(20)(S101). As a result of the

judgement, in the case that the signal for requesting a member registration is inputted, it is judged whether the inherent character stream inputted by the user using the terminal(20) is received(S102).

As a result of the judgement of the step(S102), in the case that the inherent
5 character stream is received from the terminal(20), it is judged whether the user is a member by the inherent character stream or a new member(S103), and as a result of the judgement, in the case of the new member, the service server(22) outputs a message so that the user inputs a member information, and the member registration information is received and stored(S104).

10 As a result of the judgement of the step(S101), in the case that the signal for requesting a member registration is not inputted from the user, or as a result of the judgement of the step(S102), in the case that the inherent character stream is not inputted from the user, the service server(12) changes the operation move of the digital information transmission system based on the menu selected by the
15 user(S140).

In the step(S104), the service server(22) stores the member registration information and judges whether the request signal is received for receiving the encoding key from the terminal(20)(S105). As a result of the judgement of the step(S105), in the case that the request signal is received for receiving an encoding
20 key, the service server(22) transmits a user's inherent character stream to the host server(23), and the host server(23) generates the encoding key corresponding to the user's inherent character stream and transmits to the user through the service server(22)(S106), so that the operation of the step(S100) for downloading the paid digital information is finished. When the operation of the step(S100) is performed

one time, the encoding key is generated based on the user's inherent character stream, and the generated encoding key is maintained unless the user terminates the membership.

In addition, in the step(S103), in the case that the inherent character stream
5 inputted by the user is the registered inherent character stream, the user is judged to be the user having the encoding key. The step(S11) in which it is judged whether the download request signal is received from the user for the digital information is performed. The steps(S104~S106) are performed with respect to the new members.

After the step(S106), it is judged whether the download request signal with
10 respect to the digital information is received from the terminal(20). As a result of the judgement, if the download request signal is received, the service server(22) receives a generated encoding key or an encoding key generated by the host server(23), so that the digital information that the user wants to download is encoded and transmitted to the user(S120).

15 The service server(22) transmits the service charge information which generates after the encoded digital information is transmitted to the user(S120) to the service payment proxy server(24)(S30) and accumulates into the stored charge information. The service charge payment server(24) transmits the receipt with respect to using the digital information by the user to the user using the charge
20 information.

The service server(22) has various information, and the various information is provided to the user for paid or for free through the network.

Figure 4 is a flow chart for explaining a method for generating and transmitting an encoding key in a host server of Figure 2.

As shown therein, the host server(23) judges whether an inherent character stream is received from the service server(22). As a result of the judgement, it is judged whether there is the same inherent character stream by comparing the inherent character stream and the stored inherent character stream(S410).

5 As a result of the judgement of the step(S410), in the case that there is the same inherent character stream, the stored encoding key is transmitted to the service server(22) with the inherent character stream(S420), and in the case that there is not the same inherent character stream, the encoding key is generated(S430), and the user ID and inherent character stream are stored with the
10 generated encoding key(S440).

At this time, the step(S106) performed in the service server(22) and the steps(S400~S440) performed in the host server(23) are performed in the case that there are provided the service server(22) and the host server(23) as shown in Figure 2. As shown in Figure 1, in the case that there is the service server(11), the
15 above steps are integrally performed in the service server(11), so that the encoding key is generated with respect to the user's inherent character stream, and the generated encoding key is transmitted to the user. Since it is understood based on Figures 3 and 4, the operation thereof will be omitted.

20 [Effects of the present invention]

Therefore, in the present invention, the encoding key corresponding to the inherent character stream of the user who wants to receive the paid digital information through the network is generated in the server, and the paid digital information is downloaded by the generated encoding key, so that it is possible to

prevent an illegal copy of the paid digital information.

[CLAIMS]

[Claim 1]

A digital information copy prevention apparatus of a digital information transmission system, comprising:

5 a terminal means for registering a member information including an inherent character stream inputted by a user, downloading and storing an encoding key requested by the user and decoding and reproducing the downloaded encoded digital information using the stored encoding key; and

10 a service server means for generating an encoding key corresponding to an inherent character stream from the terminal means, storing with the inherent character stream, transmitting to the terminal means when the user requests the encoding key and encoding the digital information requested by the user using the encoding key based on the digital information list, so that the terminal means downloads the digital information.

15 [Claim 2]

A digital information copy prevention apparatus of a digital information transmission system, comprising:

20 a terminal means for registering a member information including an inherent character stream inputted by a user, downloading and storing the encoding key requested by the user and decoding and reproducing the downloaded encoded digital information using the encoding key;

a service server means for requesting an encoding key corresponding to the inherent character stream from the terminal means, transmitting the requested

encoding key to the terminal means and encoding the digital information requested by the user using the encoding key and the encoding algorithm based on the digital information list; and

a host server means for generating an encoding key corresponding to the inherent character stream from the service server, storing with the inherent character stream and transmitting the encoding key to the service server means.

[Claim 3]

The apparatus of either claim 1 or claim 2, wherein said inherent character stream is a character stream which is a resident registration number or drive license number inputted by a user for a member registration for thereby identifying the user.

[Claim 4]

The apparatus of either 1 or claim 2, wherein said encoding key is generated based on the resident registration number of the user and is transmitted to be stored in the terminal means or the recording and reproducing means based on a user's request and encodes the digital information selected by the user.

[Claim 5]

The apparatus of claim 1, wherein said digital information copy prevention apparatus includes a service paying proxy server for transmitting the digital information based on a user's request from the service server means, receiving a signal for the charge and accumulating the digital information service charge information to the registered user's ID.

[Claim 6]

In a digital information transmission system capable of transmitting a digital information through a network based on a user's request and requesting a charge of the use of the same, a digital information copy prevention method of a digital information transmission system, comprising:

a first step in which a user inputs a member registration inherent character stream through a terminal means, and a member registration information is stored in the case of a new member as a result of checking the inputted inherent character stream, and an encoding key is transmitted to a user based on a request of the user's encoding key;

a second step in which after the first step, it is judged whether the request signal for downloading the digital information is inputted; and

a third step in which as a result of the judgement of the second step, when the request signal is inputted from the user, the digital information is encoded using the encoding key and is transmitted.

[Claim 7]

The method of claim 6, wherein said digital information copy method includes a method for transmitting an encoded digital information to the user and transmitting the service charge to the service payment proxy server means.

[Claim 8]

An encoding key generation method of a digital information transmission system, comprising:

a first step in which it is judged whether an inherent character stream is received from a service server;

a second step in which as a result of the judgement of the first step, it is judged whether there is the same inherent character stream by comparing the received inherent character stream and the stored inherent character stream;

a third step in which as a result of the judgement of the second step, in the case that there is the same inherent character stream, an encoding key is transmitted to the service server when requested by the service server, and in the case that there is not the same inherent character stream, an encoding key is generated; and

a fourth step in which an encoding key is generated in the third step, and the user ID and inherent character stream are stored with the generated encoding key.

Fig. 1

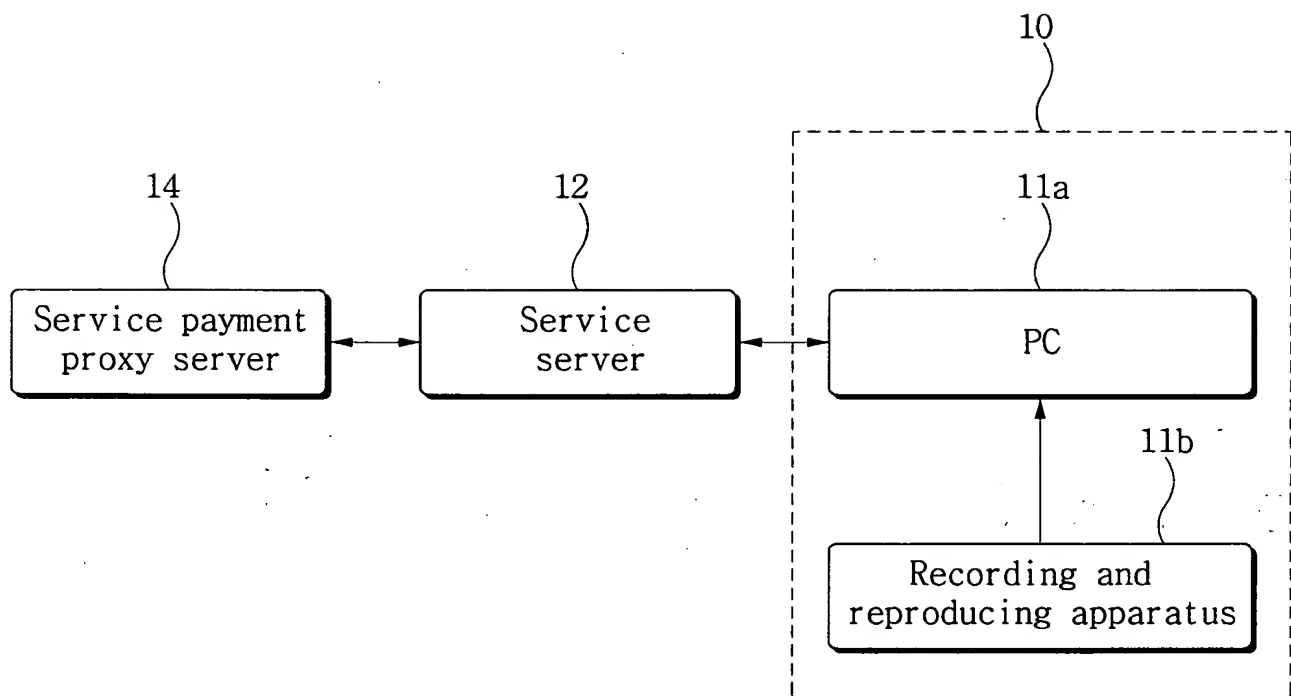


Fig. 2

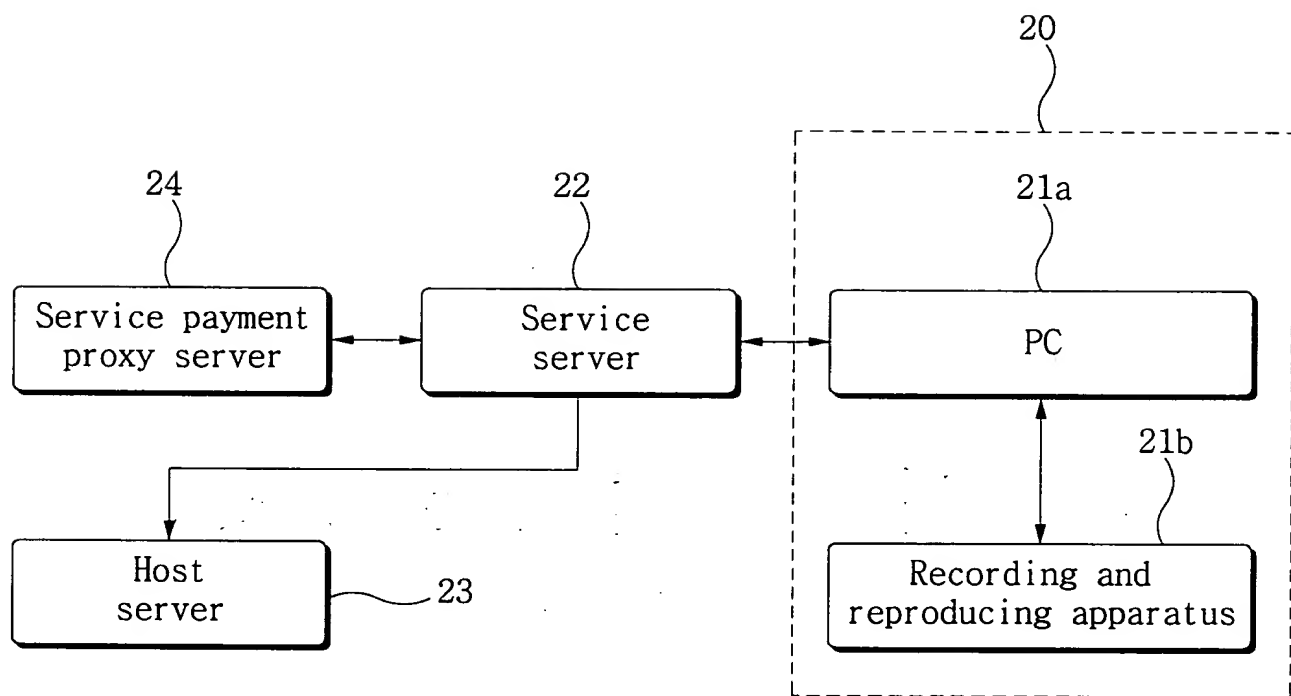


Fig. 3

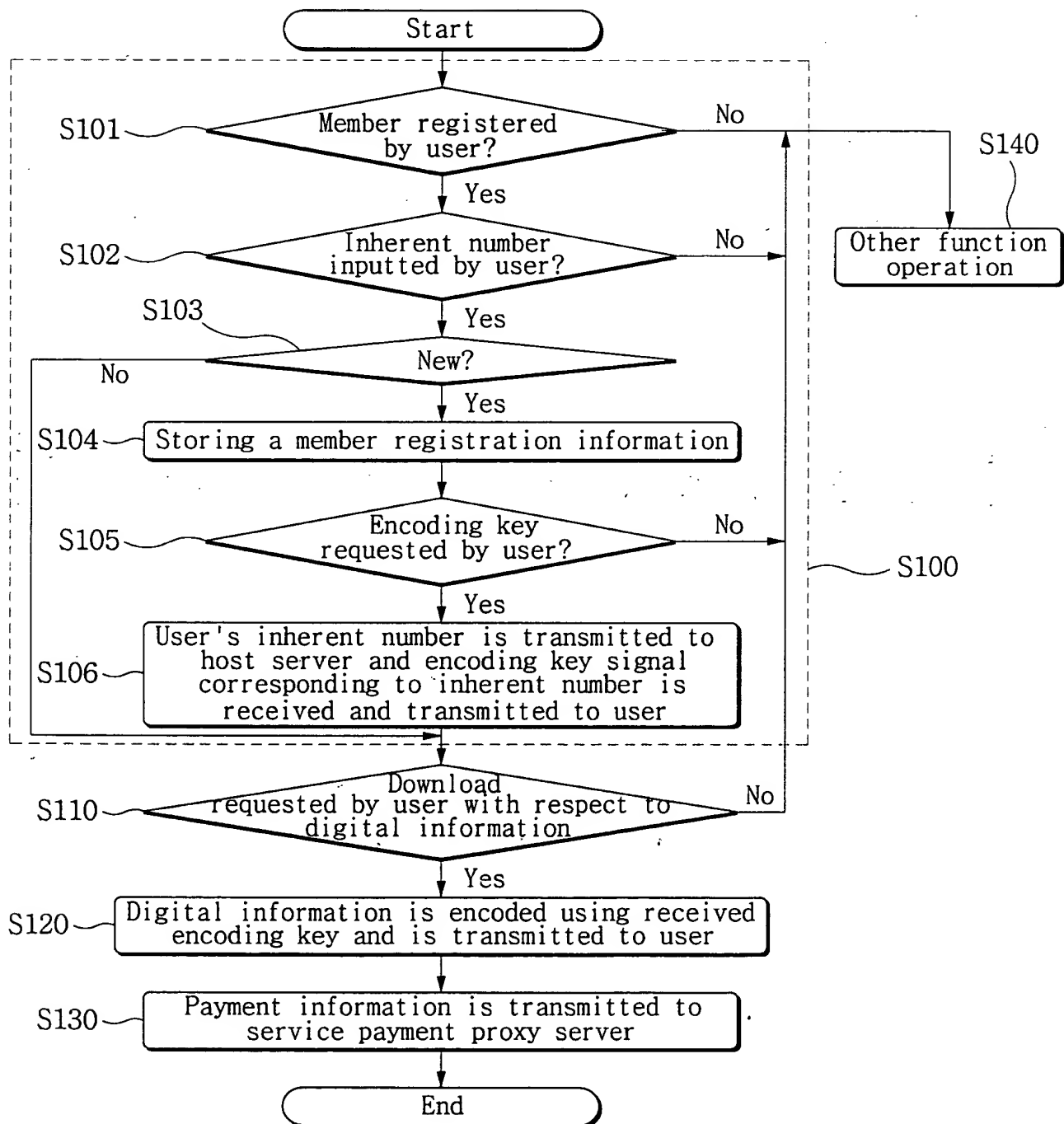


Fig. 4

